Item 1

INSTITUTIONEN FÖR
NATURVETENSKAP OCH TEKNIK

Course name/ Code	DT511A or DT520A: Software Architectures
Name of examination component/examination code	DT511A:A001 DT520A:A001
Date	2023-08-21
Time	9:15 – 13:15
Authorised aids	
Instructions	During this course, we used some commonly accepted processes and had a number of typical activities, that are characteristic to the architecting process. If you attended this course in classroom, you are welcome to refer to those activities. If you studied course material independently, you are welcome to provide your own answers, based on commonly known process or method. The questions are formulated in the form of small scenarios; the order of scenarios is important. Please, use the scenarios as topic to elaborate on rather than check-boxes to tick. Pay attention to different roles and terms in the scenarios! The examination includes five (5) topics with an overall value of 50 points. The grades are defined by the following thresholds: ● < 60%: U ● 60% - 75%: 3 ● 75% - 90%: 4 ● 90% - 100%: 5 Every questions is graded independently. The final grade is based on the sum of all answers. No negative grading, so incorrect answers are simply not counted, but do not reduce the final score.
Lecturer/-s in charge (tel. no if applicable)	Andrey Kiselev (019-30-3402)
Maximum score	50
Grade (ECTS if applicable)	U, 3, 4, 5

Examination results	The results will be posted in Studentforum within 15 working days of the day of the examination.
Other	

I have read and understood the i

INSTITUTIONEN FÖR NATURVETENSKAP OCH TEKNIK

Instructions for the Digital Classroom Examination

I want to avoid cheating - how do I do it?

You must follow the instructions for the task. If you are unsure, ask the responsible teacher if anything in the instructions is unclear.

You must not cooperate. This is an individual examination task. You must not talk to anyone, ask questions or seek help from other students or fellow students. Helping others during an individual exam is also cheating.

Put the cell phone away. Turn off social media.

You may not use assistive devices. That is, you may not use anything that is not specified in the instructions.

You may not use wording other than your own. Your answers must be independently formulated and demonstrate your knowledge. This means that no quotes or abstracts should appear in your answers.

Your answers are checked via Urkund.

All suspicions of cheating are reported to the university's rector and may lead to an examination by the university's disciplinary committee.

Consequences of cheating:

If you cheat, this can lead to suspension, which can have consequences both for your studies and personally:

- Non-availability of study materials such as e.g. which may affect your ability to keep your home.
- No access to digital platforms.
- You may need to notify other course participants that you have been convicted of cheating, if you e.g. is part of a group project on an ongoing course but is suspended.
- The opportunities for examination are lost, which may mean that you will not progress in your studies next term/semester and your course of study will thus be affected.
- The decision is a public document that is regularly requested by a news agency. And can also be requested by future employers or others.
- If you cheat your way through your education, you do not have the knowledge that the labor market expects from you.

NOTE: Think twice before starting and completing your exam!

☐ I have read and understood the information above.

Item 3

You have been invited as a software architect to a new project, which already has a development team with senior developers and a project manager. On the first introduction meeting with the team, you've been asked what is going to be your role as software architect, why is it important for the team and how are you going to collaborate with all team members, including senior developers and project manager manager. How would you answer to the team?

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Item 4

As a software architect, you are discussing product owner and project manager that you need to arrange a series of activities with stakeholders. However, both of them do not seem to understand why it is important, since you already have a very clear task to develop an application. Please, explain to product owner and project manager why do you need to engage with the stakeholders, what outcomes/information do you expect to receive, how are you going to identify stakeholders, and what exactly activities you are going to perform.

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Item 5

You have been tasked to produce relevant documentation for the software architecture you are developing, with the goal to inform company leadership on the proposed architecture and how it support business values and also to allow the development team to start the implementation work. How would you approach this problem? How will you select relevant views and what views are you going to make? Will you ask your development team to assist you in this task and if yes, how?

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Item 6

After talking to all relevant stakeholders, company leadership, investors, and sales department, you end up with a long list of requests that the system you are developing has to be the best on the market, easiest to use for the users and work well with other systems, handle all requests in real time and be always online, has to allow implementing new features easily. How are you going to deal with this mess? How will you formulate all that for your development team and set priorities in the way that you actually address those requests that make sense?

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In the discussions on the overall architecture for your system with the development team, you have been asked to describe a publisher-subscriber architectural pattern and if it can provide certain benefits or drawbacks for the system in question. Please, provide a developer-friendly description of the pattern along with pros/cons and possible alternatives.

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Item 7

After you have collected and sorted all possible information relevant for your project, you need to start actually creating architecture. You arranged a meeting with your development team to get started with this task. Please, give an introduction to all team members on what the overall architecting process is going to look like, what are the steps in the process, inputs and outputs, if the process is going to be phased or iterative. You can use the ADD process that was used during this course or offer an alternative. In any case, please give a sufficiently detailed description of the process and its steps.

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After you created a sufficient architectural proposal for your system, the product owners asked you to present that the developed architecture actually addresses business needs and values. There is also a question on why the architecture is not fully complete and some technical details and views are missing. Please, provide a product owner with a non-technical description of the evaluation process, it's steps, and what benefits and proofs it delivers, as well as a rationale on the amount of architecting work that needs to be done before the development starts.

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Item 8

This is the end! Well done!

Please, make sure that you answered all examination questions and your answers are clear and unambiguous.

☐ I checked my answers and everything looks good!